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AOA: A Personal Approach To Environmental Education

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AOA: A PERSONAL APPROACH TO ENVIRONMENTAL EDUCATION

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ABSTRACT—MESFI (Minnesota Environmental Sciences Foundation, Inc.) is field testing materials for a community-based environmental course of study. Program emphasis includes clarification of values and examination of logistics necessary to the maintenance of communities in order that they might meet social needs. The approach is individualized, providing a means of studying the impact of one's lifestlye on the environment. Emphasis is placed on development of case studies, small group discussion, and cooperative problem-solving. Use of graphics as a form of summary is stressed. The Area of Affect (AOA) is a method of mapping participant activity, range or environmental impact within the community. Modification of Johari Window and Paired Comparison techiques are used to map data and infer alternatives.

The orginal concept of community environmental studies was introduced in 1968 at the Environmental Science Center, forerunner of the Minnesota Environmental Sciences Foundation, Inc. The center was searching for educational alternatives that would help to better meet the needs of environmental education as then recognized. The basic feeling was that education, a preparation for life, included two major facets: an orderly search for knowledge about environment on the one hand and responsible decision-making on the other.

It was further felt that conservation education, which emphasizes plants, minerals, and animals "doing their thing", was perhaps not always relevant to people living in cities. That approach did not put an individual in a position for making judgment about one's personal lifestlye and its impact on the whole environmental system.

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The "laboratory" for this program is where we live. It is that part of the iceberg of environmental problems that stands above the water. One can see it, poke it, taste it, examine it. In an ecological sense, "hometown USA" represents a "community anomaly." Its residents are extremely dependent on the "outside" and have an impact and range far beyond our parallels in a natural community of plants and animals. To make the activities in this program more personally rewarding, the individual plays a central role. Program participants are, in effect, "study critters". Their "laboratory" is the community and its environs. Direct referencing of environmental concepts then starts with the individual and community; Impacts of an and of others in the program are examined on the local, regional, and sometimes the national scene in terms of ripple effect.

Some Unscholarly Departures

Some people think that by turning to ecologists, environmental problems will be resolved. The Area of Affect (AOA) approach assume this is wrong in that at least partial resolutions to the current environmental dilemma are primarily forthcoming from each and every individual and the impact of their collective efforts.

The AOA environmental education program is designed to be nonrigorous in terms of strong scientific discipline or complex hierarchies of ecological concepts. Its intent is to give participants an opportunity to understand how they personally fit into current environmental problems. This is done, first of all, by reducing ecological concepts to just

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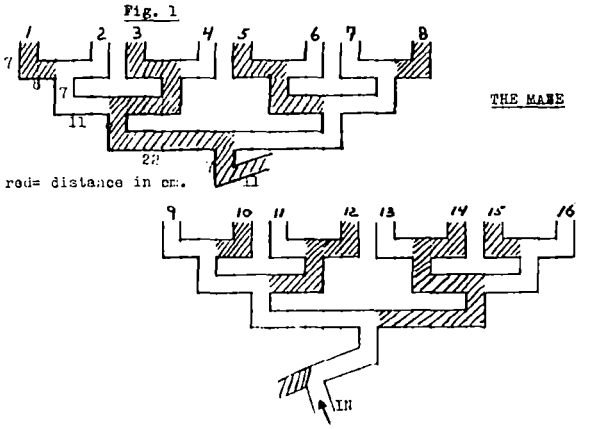
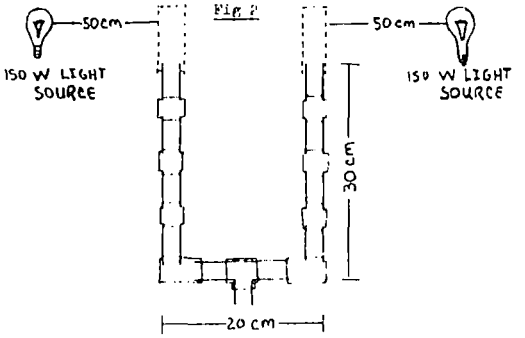
Fig. 1





In these two ways positive phototaxis would be selected for in nature.

Extrapolations from fruit fly to man are obviously hazardous, but the research under way with Drosophila concerning polygenic traits such as phototaxis can be important in helping to construct models which can throw at least some light on the polygenic traits in man.

Acknowledgments

I would like to thank Dr. Arnold J. Peterson for his assistance during this project.

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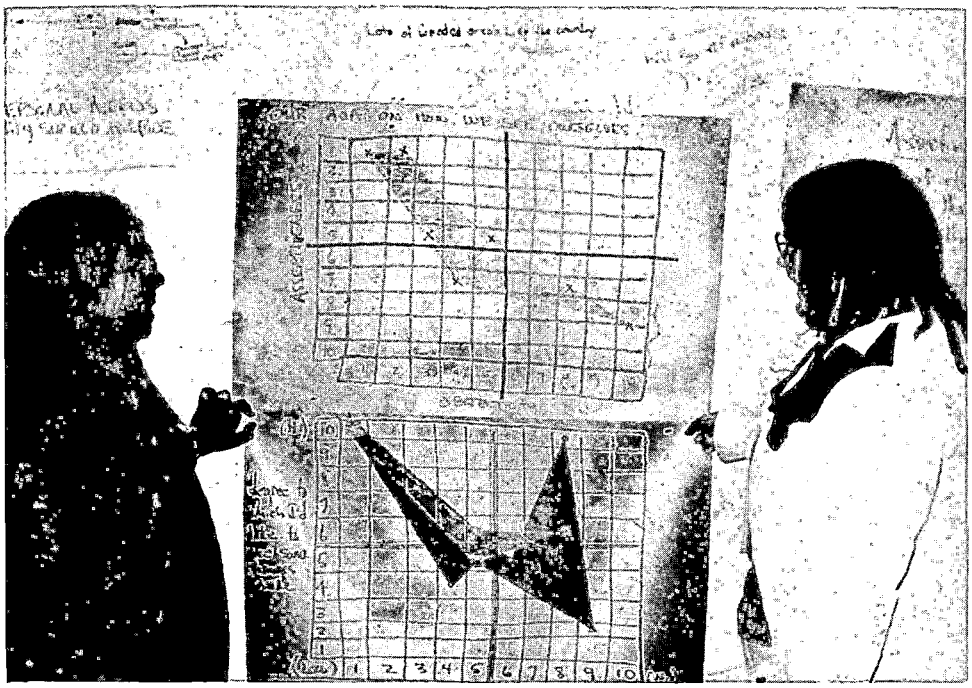
DATA

	Minnesota	Pigeon Key	St. Petersburg
Parents			
Mean light score	2.92	4.16	3.92
Variance	.69	1.19	1.39
Number run	920	970	720
Number completed Males/females	190/182	258/166	148/121
Percent completion	44%	47%	40%
F_1 **Light Selected**			
Mean light score	2.79	3.44	3.60
Variance	.68	1.35	1.22
Number run	368	500	420
Number completed Males/females	155/126	195/149	121/43
Percent completion	77%	70%	43%
F_1 **Dark Selected**			
Mean light score	2.70	3.04	3.67
Variance	.99	1.23	1.21
Number run	426	500	220
Number completed Males/females	136/156	177/96	63/16
Percent completion	69%	55%	37%
F_2 **Light Selected**			
Mean light score	2.87		
Variance	1.12		
Number run	500		
Number completed Males/females	32/7		
Percent completion	8%		
F_2 **Dark Selected**			
Mean light score	2.95		
Variance	.86		
Number run	670		
Number compelted Males/females	192/157		
Percent completion	56%		



five points that may make most disciplinarians or ecologists uncomfortable. They are a modification of Commoner's precepts and are as follows:

Everything is connected to everything else.

Everything goes someplace.

The only thing that remains constant is change.

There is no such thing as a free lunch.

You can't stop the ball and get off.

These generalize concepts are used as guidelines in looking for interrelationships. The basic assumption in the course of study is easier for the non-science student to remember not being able to "get off the ball" than to remember a complex statement about limited space and resources.

How It's Done Is Vital

The ways people contribute to environmental ills are not always obvious. It is necessary to have a method or a system to help discover what we are doing and how we are doing it. We started from theory, identified variables with which we feel comfortable and put together the beginnings of such a system. Below are some notes on the process.

A. Community.
1. We think that case studies (AOA's) referenced to an individual's 'home range' can improve understandings of the ecology of living together and working together to resolve environmental problems.
2. AOA's are real or potential places you can be or affect.
3. The ultimate outcome of AOA studies includes starting of real or potential events that you can particiapte in or cause to happen. (Fig. 2).
4. We decided to factor the above into two categories (which some ecologists and assorted scientists may view as 'sloppy') but we think they are fun to work with.
   a. Individually-referenced "home range" (i.e.) where one lives, works, sleeps,loves, decides, etc.
   b. Rigionally referenced "impact range," (i.e.) the extent to which one can have an impact on decisions, places, people or sets of conditions.

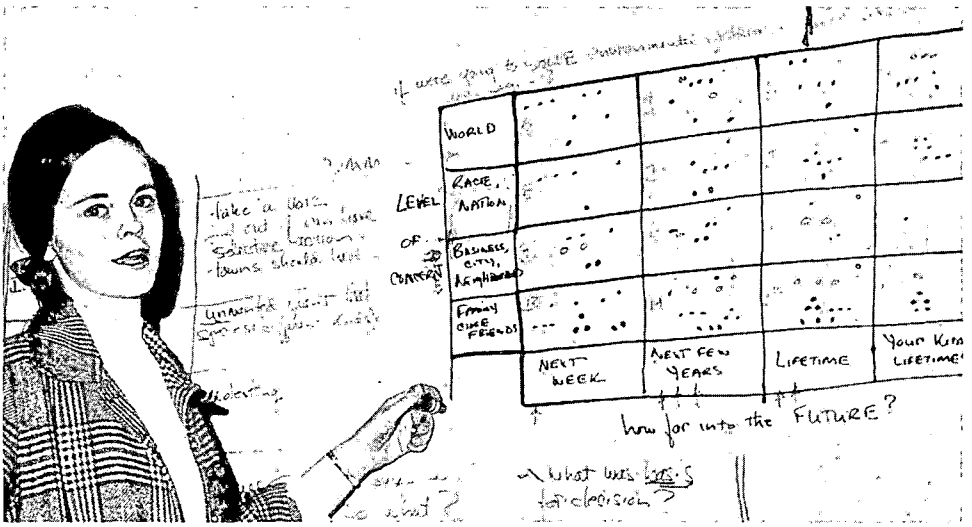
B. Regions.
1. A region-referenced case study can be based upon things people do and the interrelationships that exist or result from doing something.
2. These regions are designated as Areas of Affect (AOA).
   a. An AOA is a place or set of conditions that exist and is definable in terms of:

      (1) people
      (2) energy
      (3) interaction
      (4) potential and/or real resources

   b. An AOA must be talked about in terms of how it's put together and/or how it works.
   c. An AOA can be big or small (inclusive and exclusive) as we care to define it in terms of an environmental study referenced to an individual or an identifiable group, however, must participate actively in the study (Illustration 3).

The fundamental of a premise in this approach is based on the assumption that the individual is of primary importance in the integration of man and land. It acknowledges that this is a 'western' model in terms of perspective. It is, however, felt that the immediacy of the need to forstall continued degradation of the environment takes precedence over long-range manipulation of philosophies.

AOA starts with one's perception of "self". It encourages Individually-referenced "homerange" (i.e.) whereone



feelings and attitudes. The process requires that one makes judgements about oneself, others, the apparent value system, and quality of life. AOA, however, will not provide right answers. It will only help derive alternatives in a method one can use to make decisions systematically. In effect, it's a 'process philosophy' or 'style' of problem-solving and making judgements.

ASSUMPTIONS: 'I' am the basic ecologic "unit," my family provides the basic 'context' which strongly influences my values and behavioral modes; my community is the basic environment.

THE PROCESS: I begin exploring and prioritizing my biologic and social (cultural) needs. I map my personal areas of affect and:

1. Identify and map resources;
2. Affects and effects are inventoried and mapped;
3. Combine major patterns and look for relationships.
4. My motives, feelings and values are inventoried, explored and clarified somewhat; and
5. I make some judgements about myself, others and alternatives. (Illustration 4).

RESULT: I have found out something about myself and how I affect other people, places and events.

THEREFORE:
1. Additional AOA case studies can help me better understand my 'ecology.'
2. With others I can explore the ecology of 'togetherness.'
3. We can arbitrarily quantify group AOA's.
4. Priorities can be established collectively.
5. Communities can decide and act together.

Development and Testing

To date in excess of 100 pages of activities have been developed and field tested. General organization of the AOA manual includes the following sections.

1. General activities designed to introduce students to mapping and survey techniques. These lessons include the construction of areas of affect overlays, land-use patterns within the community, human diurnal activity, mapping 'human use' of the community, and paired comparison evaluation techniques.

2. Problem identification and the relationship of the individual to that problem. This section not only looks at environmental problems and the individual's role but also introduces an element of futurism. Paritcipants also map relationships that exist in the community relative to the satisfaction of personal needs such as travel, food webs, clothing and construction materials.

3. Values clarification and group dynamics activities designed to promote better small group interaction. Attempts are made to build tolerances of others' personal interaction style as well as acceptance of oneself. The primary goal is to prepare participants to work in cooperative problem-solving situations.

4. Activities designed to broaden the concept of 'environment.' Participants search out environments related to personal need and social purpose, as well as looking for traditional habitat types.

5. Problem-solving techniques and methods of constructing case studies relative to the issue or activity that participants have chosen to do. Force field analysis technique is introduced for problem-solving purposes.

6. Notes, hopes, philosophy and technical discussion of the manual. Little has been done on this section, pending the outcome of further development in field testing.

Activities were deleveloped within the above hierarcy as per the expressed needs of program participants. Staff and individuals involved in environmental education who were working with the Foundation also contributed activity suggestions. Field testing included elementary, high school and in-service courses for teachers. The philosophy was:

1. Most activities should be simple enough to be understood at the 3rd grade level. Select inventory activities were trailed with a 3rd grade class at the Meadowbrook Elementary School of Golden Valley, Minn.

2. It was felt that the course should meet the needs of the broadest possible audience and avoid "elitist." so two separte 60-hour courses were conducted for 33 high school dropouts from the Robbinsdale (Minn.) School District. The rationale was that these individuals were having trouble with the formal education system. If they could be motivated to participate successfully in the program the average and above average students also would probably find the course work appealing by nature of its open-endedness.

3. Two separate 40-hour in-service programs were run for elementary and secondary teachers, with a total of 36 participants. Grade levels 3 through 6 were represented in the elementary level. Junior and senior high school disciplinary areas represented included math, social studies, anthropology, science, English, and biology.

Evaluation of the program was completed by all student and teacher participants. The following quotation was taken from one of the subjective evaluation forms completed by a teacher participant.

> **" It really makes you think! It reinforced the change in my own lifestyle in order to stay even with the world problems confronting us--pollution, famine, etc."**
>
> **" The idea that everything is connected to everything else, can be used throughout the day in my classroom. It's a way of teaching awareness through the discovery method that is very meaningful to little children. They are very 'me' oriented but love to discover new things."**

Evaluation feedback from all participants in the field testing program thus far has been positive, constructive and encouraging. MESFI is continuing to develop new activities for this manual and anticipate field testing and development completion by the summer of 1976.

The AOA approach to environmental education is based on the assumption that an individual's behavior is not easily modified unless the information which purports to affect that change is directly referenced to them in a very personal way. The technique uses the methodologies of values clarification, interpersonal relations and modified ecology techniques designed to gather information about "self" as well as the environment. All information sets derived from the activities orginate from personal input, which is then shared with the group to develop a "feel" for total group impact. Participants recognized the intent not to turn them into ecologists or scientists. The stated goal is development of informed individuals aware of their actions, their impact on the environment and the methodology of working with others to solve environmental problems.

Walter F. Mondale (in center), Minnesota's senior senator who was nominated for vice president after this picture was taken, met with prize-winning student scientists when they went to Washington, D.C., for the National Science and Humanities Symposium sponsored by the U. S. Arny Research Office . The Minnesota students were Nadine Rossow, Jay Pearson, Ken Libbrecht, Mark Behrens, and Tom Pennaz. Parents accompanying the group were Mr. and Mrs. Blake Rossow and Mr. and Mrs. Vaun Olhausen. David Bender, director of Minnesota's Junior Academy of Science program, is at left.